

REMARKS

By the present amendment, claim 1, 2 and 6 have been amended to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. Claims 1 and 2 have been amended to incorporate the subject matter of claim 5 therein and claim 5 has been cancelled. In addition, support for some of the subject matter added to claims 1 and 2 may be found on page 5, line 30 and page 6, lines 16-24. Support for some of the newly added subject matter to claim 6 may be found on page 6, line 30. Entry of these amendments is respectfully requested.

In the Office Action, claims 1 and 6 were rejected under the second paragraph of 35 USC § 112 as being indefinite. Specifically, it was asserted that the broad recitation followed by the preferred narrower recitation in claim 1 makes the claim indefinite. Additionally, it was asserted that the use of the word "soft" in claim 6 renders that claim indefinite.

In response, claim 1 has been amended to, among other things, to delete the narrower recitation of "particularly suited as a sliding material." With regard to the rejection of claim 6, the word "soft" has been deleted from the claim. Accordingly, withdrawal of the rejection under the second paragraph of 35 U.S.C. § 112 is respectfully requested.

Claims 1-4 were rejected under 35 USC § 103(a) as being unpatentable over the patent

to Mori et al. In making this rejection, it basically was asserted that the cited Mori et al patent teaches Al-Si or Al-Si-Sn compositions with ranges for disclosed components overlapping those as claimed in independent claims 1 and 2. It was acknowledged that the patent does not teach the solid solution state as claimed, but it was alleged that the products according to the publication inherently would have this state. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

As mentioned above, claims 1 and 2 have been amended to incorporate the subject matter of claim 5 therein and claim 5 has been cancelled. It is therefore submitted that the subject rejection is now moot. Accordingly, withdrawal of the rejection under 35 U.S.C. § 103 and allowance of claims 1 through 4 over the cited Mori et al patent are respectfully requested.

Claim 5 was rejected under 35 USC § 103(a) as being unpatentable over the same patent to Mori et al in view of the patent to Kawagoe et al and claim 6 was rejected under the same statute over the patent to Mori et al in view of the patent to Wilkoz et al. In making these rejections, it was acknowledged that the Mori et al patent does not teach (a) surface roughening of the substrate and (b) a layer covering the outer surface of the wear resistant coating. The two additionally cited patent were then asserted to provide these deficiencies. Reconsideration of these rejections in view of the above claim amendments and the following comments is respectfully requested.

It is submitted that the cited Mori et al patent does not teach or suggest the subject matter as is now set forth in amended claims 1 and 2 and the claims dependent thereon. Among others, it is submitted that an important difference between the subject matter as set forth in independent claims 1 and 2 and the patent disclosure is that the composition according to the invention is "flame-sprayed by means of high velocity oxy-fuel flame-spraying method (HVOF) onto a substrate roughened by shot blasting" as opposed to being thermally sprayed as taught by the patent. In addition, the flame-sprayed aluminum alloy has adhesive strength of film higher than that of a flame-sprayed Ni film, as measured by a shear-fracture testing method. Thus, it is submitted that the alloys according to the claimed invention differ from those of the cited patent in terms of one or more of components, proportions, structure and/or properties as defined in the claims and this difference produces unexpected or surprising results.

It is submitted that the above noted teaching deficiencies of the Mori et al patent are not supplied by the Kawagoe et al and Wilkoz et al patents. Among other things, the Kawagoe et al and Wilkoz et al patents do not teach or suggest an aluminum alloys of the composition claimed which is flame-sprayed by means of high velocity oxy-fuel flame-spraying method (HVOF) onto a substrate roughened by shot blasting where the flame-sprayed aluminum alloy has adhesive strength of film higher than that of a flame-sprayed Ni film, as measured by a shear-fracture testing method.

Serial Number: 09/423,981

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103 and allowance of claim 1 through 4 and 6 over the cited patents are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

ARMSTRONG, WESTERMAN, HATTORI,
McLELAND & NAUGHTON, LLP

A handwritten signature in black ink, appearing to read 'Donald W. Hanson', with a long horizontal flourish extending to the right.

Donald W. Hanson
Attorney for Applicants
Reg. No. 27,133

Atty. Case No. 991304

1725 K Street, N.W., Suite 1000
Washington, D.C. 20006
(202) 659-2930
DWH:rab

Marked Up Version of Amendments to Specification and Claims

IN THE CLAIMS:

1. (Amended) A flame-sprayed aluminum-alloy ~~particularly suited as sliding material,~~ wherein the aluminum alloy contains containing from 12 to 60% by weight of Si, the balance being essentially Al, ~~and further the granular Si particles are dispersed in the matrix thereof~~ the aluminum alloy flame-sprayed by means of high velocity oxy-fuel flame-spraying method (HVOF) onto a substrate roughened by shot blasting, and includes granular Si particles dispersed in the matrix of the aluminum alloy, and further said flame-sprayed aluminum alloy has adhesive strength of film higher than that of a flame-sprayed Ni film, as measured by a shear-fracture testing method.

2. (Amended) A flame-sprayed aluminum-alloy ~~particularly suited as sliding material,~~ wherein the aluminum alloy contains containing from 12 to 60% by weight of Si, from 0.1 to 30% by weight of Sn, the balance being essentially Al, ~~and further the granular Si particles and Sn are dispersed in the matrix thereof~~ the aluminum-alloy flame-sprayed by means of high velocity oxy-fuel flame-spraying method (HVOF) on a substrate roughened by shot blasting, and includes granular Si particles and Sn dispersed in the matrix of the aluminum alloy, and further said flame-sprayed aluminum alloy has adhesive strength of film higher than that of a flame-sprayed Ni film, as measured by a shear-fracture testing method.

Cancel claim 5.

Serial Number: 09/423,981

6. (Amended) A flame-sprayed aluminum-alloy according to claim 5, wherein a ~~soft~~
film coating containing a material selected from the group consisting of Sn, Pb-Sn and MoS₂-
graphite is applied on said flame-sprayed aluminum alloy.